Accommodating 'unaccustomed pragmatic spaces' in Arbib's model
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Introduction

Arbib offers a sophisticated and convincing account of the evolution of human language that does not shy away from nailing together neurophysiology and the forms and functions of language. The core recognition of what language *does*, rather than just what language looks like or how its forms are generated, gives the model a high level of explanatory significance.

This commentary explores interaction in the context of his account of comprehension, section 4.3.2, offering some observations that potentially test and support the model. They expand Arbib's existing consideration of agrammatism, where he suggests that difficulties with managing the linguistic system (*Grammatical Route, G,* including *Light Semantics, LS)* are compensated for using world knowledge (*Heavy Semantics, HS*). That is, if, in comprehension, one is not sure how the words go together, one increases attention to the pragmatics generated by the observable context and general memory to fill in the gaps.

I introduce the opposite situation, where, in dementia of the Alzheimer's type, compromises to world knowledge and pragmatics create unstable HS, and may generate ambiguity in the linguistic input. I consider how Arbib's model sheds light on the typical fixes for this eventuality, and also venture a link back to the protolanguage account.

'Pragmatic spaces' in dementia communication

In Arbib's model, comprehension of linguistic input requires a match between G/LS and HS—that is, between the linguistic content and a candidate SemRep adduced from the scene and world knowledge. Pragmatics is vital because "A single scene can have many SemReps" [p.42] and additional information is required to assign appropriate meaning. But what would happen if the disambiguating information were both inherently unstable and incompatible with something in the linguistic encoding?

Let us consider a scenario. A person with dementia (PwD) asks a question, and the family carer (FC) answers it. Later, PwD, having forgotten that the previous iteration took place, asks the question again. Because she does not remember asking it previously, she encodes it as being asked *for the first time*. That is, she does not mark it pragmatically as a repeat. FC, however, remembers answering that question only a matter of minutes ago, and encodes his response using lexis and/or intonation that marks it as a repeat of old information (e.g. emphasised; with irritation). In short, there is a conflict between the two parties' assumptions of shared knowledge. In unimpaired communication contexts, mismatches like this are addressed by means of rationales like, *I must have misheard/been misheard/missed the significance of the speech event,* etc. That is, in line with Arbib's model, world knowledge can be updated on the basis of linguistic content as well as the reverse.

In Arbib's terms, FC's world knowledge is challenged by the active SemRep data from PwD's encoding, surfacing a contradiction with what he believed was shared information about the world. Taking FC's response as active SemRep, PwD likewise undergoes query to her world knowledge, and must infer that something is wrong with her mental map—either accurately surmising that she has inadvertently failed to access what should be shared

knowledge, or else perhaps only perceiving that FC is unexpectedly annoyed for some reason. The point of interest is how this situation is managed by the two parties.

We are dealing here with a different situation from the one whereby "a patient suffering from brain lesions impairing her capacity to use grammatical cues can compensate in some cases by relying on her knowledge of the world to assign linguistic inputs to their correct semantic role" (4.3). In dementia, access to elements of world knowledge becomes unstable. Furthermore, this instability impacts not just on PwD but also FC. PwD is unsure what the core interactional parameters are (*should I know you? Am I supposed to know what's about to happen?*). FC is unsure what PwD knows/remembers and how best to frame messages. As a result, neither party is in a strong position accurately to rebuild the pragmatic base on which shared knowledge is built. In constructing SemRep, HS is no longer a reliable means of supplementing shortfalls in G and LS—of which, in the dementia context, where linguistic encoding and decoding are compromised, there are sure to be many.

Since it is well-documented that interaction between a PwD and a Family or Professional Carer (FPC) can be emotionally charged and stressful, we can take it that the system destabilised in this way is not necessarily easy to rebalance. Indeed, I shall show how the attempt to fix things can actually exacerbate the problem, by creating out of the instability pockets of 'unaccustomed pragmatic spaces' that are even harder to manage.

To develop this point, I turn the telescope round, to consider what, in practice, PwDs and FPCs do to resolve the problem and where it leaves them. I shall then consider whether Arbib's model easily adapts to accommodate those scenarios.

The creation of 'unaccustomed pragmatic spaces'

A PwD is not unaware of the problems for interaction that her condition is creating. The inability to manipulate words, grammar and memories in conversation is a frustrating reality, and attempts will be made to minimise the damage. This damage is both informational (e.g. failure to understand or express a complex idea) and emotional (e.g. frustration at not understanding; helplessness about not being understood; distress and hurt in the face of responses encoded with exasperation and impatience, as described earlier).

Various responses are possible, including social withdrawal, talking to minimise the need to listen, and, as described next, linguistic patches that simultaneously succeed in their immediate purpose but also introduce unintended consequences in the form of unaccustomed pragmatic spaces.

An unaccustomed pragmatic space is an unexpected gap in the pragmatic fabric, which cannot be mended using customary strategies. Unaccustomed pragmatic spaces arise because the interlocutors' confidence in pinning down what is core shared knowledge is undermined. They reflect inherent ambiguity that, I shall suggest, is consequent on the deployment of pseudo-linguistic forms anchored in HS only, and that, despite their appearance, are not suitable to feed into G/LS processing. Let us consider some real examples.

Example 1: 'Maureen', a PwD with a strong drive to disguise the severity of her problems, developed the strategy of preceding her questions with 'I've probably asked you this already, but…' [1].

Comment: Although this is a rational fix, because it defuses the interlocutor's irritation at the repetition of a question, a PwD who deploys it cannot help but attach it equally to questions that she has and hasn't asked before. For the interlocutor, therefore, a new crack appears: when PwD *fails* to use that preface, does it signal that she knows (or believes she knows) it is a new question, or that she has forgotten she often repeats questions? The way the interlocutor jumps will significantly influence how the interaction continues.

Example 2: 'Joan', a retired international opera singer, presented, at a weekend masterclass for singers, with noticeable symptoms of Alzheimer's [4]. Struggling with word finding, she adopted a set of formulaic expressions for use in commenting on the performances. One was 'that's lovely darling'. However, she used this expression not only in neutral and positive responses, but also immediately before a contradictory comment about, for example, poor tuning.
Comment: Singing teachers often have formulas for beginning their feedback in a manner that minimises loss of positive face. However, by using the phrase indiscriminately, Joan detached it from any reliable meaning, and risked confusing the singer (was it lovely or wasn't it?)

Example 3: 'Clive', no longer able reliably to remember who people are, adopted a single, neutral expression when people entered the room: 'Hallo Mate, what can I do for you?' (Clive's son, personal communication).
Comment: This is a credible proactive fix, because it creates a space for the interlocutor to provide cues about his identity and his business without either party getting embarrassed. But used universally, it overlays any remaining capacity to take the local situation into account. Thus, Clive might use it when his son re-enters the room after five minutes absence, even though he has not entirely forgotten the immediate past. His son, then, cannot tell if Clive really can't remember, or is just 'saying his thing'.

Example 4: A PwD is aware that she doesn't always understand what is said to her. She adopts 'yes I know' to help her complete her turn and pass the floor back to the interlocutor.
Comment: Although she successfully maintains the conversational flow, the ubiquity of the expression means that the interlocutor cannot tell what has and has not been understood, making it difficult to proceed.

These examples are indicative of a much larger phenomenon, whereby PwDs deploy easily-produced formulaic expressions as a tool to manage the crisis in pragmatics. However the deployment of formulaic expressions is not confined to PwDs: they are also used in striking number by the interlocutors (e.g. *oh, that's nice; there we are; oh dear; eat up now*) [5]. Here, they seem to be a mechanism for psychological distancing [6,8]. It seems that if one puts less cognitive effort into producing output, it creates a protective emotional space: I'm not investing much in you, so your behaviour doesn't get to me.

To sum up, one solution used by both PwDs and FPCs is to employ formulaic expressions as a kind of patch over actual or potential gaps in the flow of communication. This being so, it is important to identify the linguistic status of the sorts of formulaic expressions that are typically used. Formulaic language comes in many forms and has many functions [3], most of which need not concern us here. There is a subset that are function-heavy and meaning-light (e.g. *how do you do; have a nice day; as the actress said to the bishop; ah well*). It is not that they are meaning*less* in linguistic terms, but that content semantics takes a back seat, even to

the extent that if function and content conflict, function overrides (e.g. *fine thank you*). It is this type that PwDs and FPCs seem to exploit to manage interactional challenges.

Where do they fit in Arbib's model? His adoption of construction grammar is helpful here. We do not need to suppose that the expressions are generated from their parts every time they are produced. More salient, indeed, is to ask whether we should count them as regular examples of (single item) lexis (W). I want to propose that, certainly, like many multiword strings, they do have the status of a single item (be it 'word' or 'construction')—but that the type described here is a special case.

Arbib proposes that instances of W that are content words activate both LS and HS, so that world knowledge is both drawn on to interpret them and, reciprocally, can be modified by them. We could without difficulty extend W to include multiword strings with a coherent semantic unity, such as *Christmas tree* and *gang up on*. Where W is a function word, Arbib suggests, only LS is involved. Again, we can easily expand W to include multiword function lexis such as *in order to* and *out of*. He offers, however, no subtype of W that activates only HS.

Could it be that single and multiword formulaic expressions with a pragmatic management role counterbalance the function words, by involving only HS, and being ignored by LS? This would certainly be consistent with their being cognitive 'lite'. They would be, in a sense, verbalised versions of visual gestures—both words and not words, much as has long been proposed for 'non-propositional' language [2]. Arbib's suggestion that the HS route is blind to grammatical cues indirectly supports this view, because of the capacity for formulaic expressions to sustain non-canonical patterns without challenge over time [3]. It would also explain why the 'word' is a fuzzy concept [9] and why we observe fundamental hybridity in grammar [7]—for such formulaic expressions resemble regular G/LS material, but their forms and functions can break the mould.

Most importantly, it would help explain the generation of unaccustomed pragmatic spaces in dementia interaction. They arise not because there is anything wrong with the use of these HS-only W items, but because it is difficult for a hearer to treat them as HS only when searching for meaning in an unstable interaction. As a result, the hearer is caught between two often contradictory interpretations, HS-only, and G/LS: when you say *what are we doing today?* have you really forgotten or is it just what you say to open a conversation? When you suddenly don't say it, is it because you can remember, or for some other reason? The ambiguity creates conditions of stress that will often encourage FPCs to use their own HS-only expressions, as a means of reducing cognitive engagement.

Full circle?

In section 3.1 Arbib aligns himself with my holistic protolanguage model, whereby forms managed by pragmatics preceded referential lexis and grammar. As such, we have in place from the pre-G/LS era a link between HS and complete messages, and we do not need to concern ourselves with how the formulaic responses that can now result in unaccustomed pragmatics spaces might have come about. They are, perhaps, a remnant of what was, before we had the full flexibility of LS and G, a primary solution to the daily challenge of shoring up the walls of (unpredictable) shared knowledge. The emergence of full language would have provided the mechanism for a more nuanced management of shared knowledge in normal circumstances, with the vast majority of single and multiword W tied to LS. When, in

extremis, we deploy W in an HS-only mode, perhaps we glimpse the power and limitations of G and LS in unpicking holistic meaning-making.

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